

Introduction

Public Health Problem:

- Cardiovascular Disease (CVD) is the leading cause of death in the United States and accounts for ~ 1 in 3 deaths nationwide.
- Sexual Minority (SM) adults face structural stigma and minority stress, which may increase cardiometabolic risk and contribute to CVD disparities.
- Prior evidence suggests elevated cardiometabolic risk among the SM population.

Study Rationale:

- Although CVD disparities among sexual minority adults have been documented, it is unclear whether sexual minority status is independently associated with CVD after adjustments for socio-demographics.
- To evaluate existing disparities, updated estimates based on recent, nationally representative NHIS 2021–2024 data are required.
- Clarifying this association is important for informing equitable cardiovascular screening and prevention strategies.

Research Objective and Hypothesis:

- Guided by the Minority Stress Framework (Meyer, 2003), this study examined whether SM adults have higher odds of reporting CVD compared with heterosexual adults and whether healthcare access modifies this association. We hypothesized that SM adults would have higher odds of CVD.

Methods

Study Design:

- Cross-Sectional study using pooled National Health Interview Survey (NHIS), 2021-2024 data.

Ethical Approval

- This study was determined to be non-human subjects research by the Drexel University IRB (Protocol #2501010993).

Study Population

- U.S. civilian, noninstitutionalized adults aged ≥18 years.
- Final analytic sample: N = 111,566.

Variables

- Exposure- Sexual orientation: a. Heterosexual (reference), b. Sexual Minority (lesbian, bisexual, gay, and "something else").
- Outcome- Composite CVD (≥1 of the following): Hypertension, Myocardial Infarction (MI), Coronary Heart Disease (CHD), Stroke, High Cholesterol.
- Covariates- Age, Sex, Race/ Ethnicity, Education, Poverty Level, Insurance Status, Survey Year.

Analysis

- Survey-weighted estimates.
- Rao–Scott χ^2 tests.
- Logistic regression (crude + adjusted).
- Interaction: sexual orientation × insurance.
- Sensitivity & stratified analyses.

Figures

Figure 1: Crude vs Adjusted Odds Ratios for Any CVD

Sexual Minority vs Heterosexual; NHIS 2021–2024 (N = 111,566)

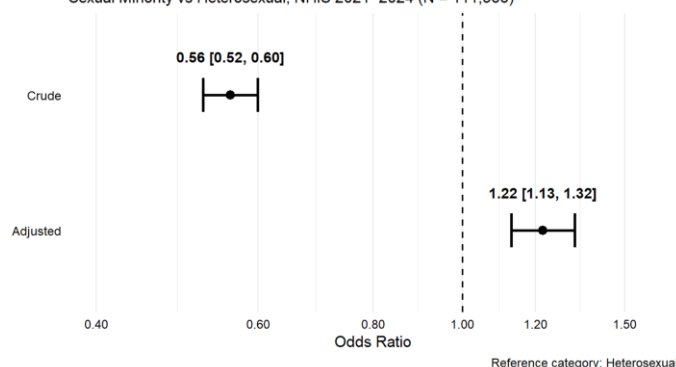
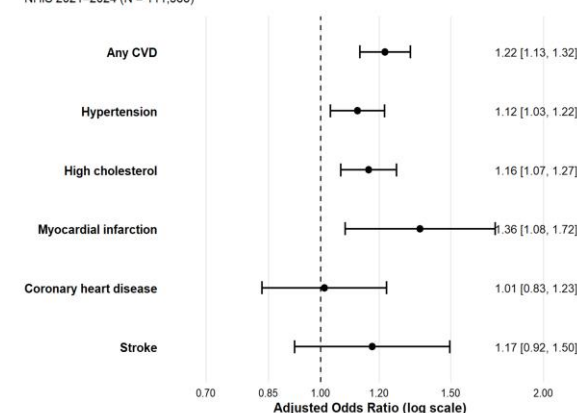


Figure 2. Adjusted Odds Ratios for Cardiovascular Outcomes by Sexual Minority Status

NHIS 2021–2024 (N = 111,566)



Note. Models were adjusted for age category, sex, race/ethnicity, education, poverty level, insurance status, and survey year. Reference category: heterosexual adults. Error bars indicate 95% confidence intervals.

Results

- Study sample:** NHIS 2021–2024, U.S. adults ≥18 years (N = 111,566, survey-weighted). Sexual minority respondents represented 5.4% of the weighted population (unweighted n = 5,563).

- Descriptive prevalence:** Survey-weighted prevalence of any CVD was lower (unadjusted) among sexual minority adults compared with heterosexual adults:

Sexual minority: 31.5% (95% CI: 30.0–32.9)
Heterosexual: 45.1% (95% CI: 44.6–45.6)

- Figure 1. Crude and adjusted odds ratios for any cardiovascular disease among sexual minority versus heterosexual adults**

- Crude OR = 0.56 (0.52–0.60), but after adjustment, the association reversed: aOR = 1.22 (1.13–1.32).

- Sequential adjustment:** Age accounted for most of the shift in the odds ratio (0.56 to 1.20), while later adjustments changed the estimate only slightly.

- Insurance interaction:** The interaction between sexual minority status and insurance status was not statistically significant ($p = 0.155$).

- Figure 2. Adjusted odds ratios for cardiovascular outcomes among sexual minority versus heterosexual adults**

- Higher adjusted odds for hypertension (1.12), high cholesterol (1.16), and MI (1.34); CHD and stroke not significant (CIs include 1).

Conclusion & Implications

- Sexual minority adults had higher adjusted odds of CVD than heterosexual adults.
- The crude estimate underestimated this disparity; age explained most of the change after adjustment.
- Prevention efforts should support early screening, inclusive surveillance, and affirming care.
- Results should be interpreted cautiously because the study was cross-sectional and based on self-reported outcomes.
- Findings highlight the importance of structural and social determinants in cardiovascular disparities.

Acknowledgement

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References

- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>